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ABSTRACT

Southeastern Regional Vocational-Technical High School located in South Easton, Massachusetts, and which serves approximately 1,300 students from multicultural backgrounds and various socioeconomic communities, is currently using several types of interactive instructional technologies. The school's graphic communication program is a laboratory with state-of-the-art tooling, and its computerized office technology program uses IBM computers that are networked through the Novell system, allowing students to work dependently and independently in three settings: medical, legal, and general. Students in the school's health services programs use CD-ROM to learn medical technology; robot dolls with interchangeable HyperCards allow for simulations of illness and irritability. The school's science laboratories use laser discs and a video lab system that provides instructors with Flexcam cameras and microscope adapters for interactive television laboratory applications. Teachers at Southeastern have access to several graphics workstations that help them prepare/present stimulating arrays of interactive lessons. The students and teachers who use the new interactive instructional technologies are excited by its prospects and are learning the immediacy of interactive technology. The teachers have become facilitators, and the students have become fine-tuned apprentices ready to accept the challenges posed by a rapidly changing society. (MN)

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ED 391 011

Patrick H. O'Neill, Jr.: ***Student/Teacher Satisfaction with Interactive Instructional Technologies***

Recent concerns in how to professionally update teaching methodologies using learning technologies and interactive teaching strategies are catching the country by surprise. Surprise indirectly associated with the technology and the speed in which the technology methods are being developed seem staggering. An alarming number of young Americans are ill-equipped to work in, contribute to, profit from and enjoy our ever-growing technological society (Brooks, 1993). Students are exiting our elementary and secondary schools with inadequate preparation in math, communication, science and technology. One concept we as teachers, as educators, have to consider is this trend to utilize the new methodologies surrounding educational technology. If CORE curriculum components stressed as the backbone of educational reform as we approach the year 2000 are to successfully learned, it is clear that our teachers need to be of high talent, high motivation and must be allowed to function in a setting in which effective teaching is possible. Top priority must be placed on retiring present teachers and recruiting new teachers who are and will be the technological educators of our students.

There is a complete paradigm shift occurring in America - old teaching methods are no longer working effectively and standardized testing results and countless student observations bare this out. Most students are focused on understanding "info-bytes" or small portions of useful information. Society and family lifestyles support this behavior shift, for no longer do we focus large amounts of time on recycled information. We have indeed created a "throw away" society where information is used for a specific purpose and then discarded. Teachers can no longer lecture on topics that are antiquated and from curriculum contexts that have not been updated in a decade. Teachers can no longer teach using the methodologies of the past - they must be effective facilitators using themes and concepts to introduce problem-solving and critical thinking skills to their students. Students have to be exposed to these elements within the paradigm shift in education for the same kinds of changes are occurring in the world of work. Along with the philosophical change in teacher delivery systems, there has to be a long-range strategy to develop sound principals in using technology (such as the computer) as a tool, a medium, to deliver the lesson or lessons. Effective teaching mirrors effective learning, yet as educators we have not mounted a serious effort to organize teaching around the learning process. Instead, we have viewed education as an institution or an administrative system or set of instructional techniques. The ultimate act of restructuring is to change the process of instruction and its related acts (planning, curriculum design, and assessment) so they reflect best of what we know about learning. Southeastern has taken steps to do this and absorb maximum output from students who are going through the restructured educational pattern that has been greatly altered by the Education Reform Act of 1993, (Antonucci, 1993).

Background

Southeastern Regional Vocational-Technical High School, located in South Easton, Massachusetts. The school is regionalized and an administrative district. Students re recruited from eight surrounding towns and the city of Brockton. Students at Southeastern Regional Vocational-Technical High School graduate with a diploma from the Department of

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Education, Commonwealth of Massachusetts, and a competency-based trade certificate. The school serves a student population of some 1,300 students who come from multi-cultural backgrounds as well as various socio-economic communities ranging from high to low income and high to low crime influence.

Nature of Problem

Since the enactment of the Education Reform Act of 1993, education systems statewide have gone through dramatic change as these systems set up timelines to implement new forms of how our students will be educated and prepared more vigorously for a very competitive worldwide economy.

As previously stated there are several fundamental changes that are transforming both the job market and American society as a whole. One is the massive growth of technology, an economic and social force whose impact we have only begun to feel. Technology is now creating hundreds of new jobs; at the same time, it is rendering many existing careers obsolete and raising the educational level required for many traditional forms of employment; already, an estimated 73 percent of jobs require at lease some information processing skills. Thus, the technical workforce has become the fastest growing job sector by far. According the Cetron (1991), the demand for technical workers is expected to grow at least twice as fast as that for other fields.

Target Generic Skills and Attitudes

Teaching faculty at Southeastern Regional Vocational-Technical High School has become very well read and prepared as a result of well-planned and carried out professional development activities. The activities included human resource development strategies which lead to teacher empowerment. Teacher empowerment lead to the creation of design teams whose purpose was to isolate "bugs" in the system and design strategies to correct the problems in an efficient manner. All teaching faculty recognized the need to establish instructional goals that would allow them to better serve their students while going through lasting change in the school's reform movement. The teachers had a mix of instructional goals that included logic and reasoning skills, cooperative skills, and work-related activities. Teachers planned to instill positive work-related attitudes in their students by acting as role models and stressing self-esteem building activities throughout classroom performances. These activities varied by class but included students taking ownership in their own learning and daily performance. Work was more personalized or customized so that the student could find the lessons more interesting and rewarding. An element of cooperative learning was introduced to increase the students' responsibility for learning by holding the student accountable for group participation and requiring the student to assist in helping others learn.

Uses of Interactive Technology

Most secondary schools in our area of the state rely primarily on computers as their specific source of technology training. All students in the state are required to be computer literate and have a knowledge of programs. That is as far as most public schools go with regard to technology training. Some private schools are better focused on software packages

that provide simulation training or program infusion for supplement to what is occurring in the classroom. There is relatively little movement into interactive components of teaching and learning. Most involvement is surface value at last.

Several possible reasons could explain this phenomenon. Namely, funding for interactive technology is minimal in most school systems. Budgets do not address the specific need to "tool up" the classrooms. Reform has been costly and dollars go elsewhere - keeping systems running and institutions alive takes the "lion's share". Another reason we don't see a lot of reform to technically update is the lack of well-trained faculty who can foster the need for this lasting change. Programs for training the trainer do not exist. Southeastern Regional Vocational-Technical High School is considered among the lucky because we have been able to financially plan to include interactive technology into our system until every program and teacher is equipped to deal with the demands of classrooms of the future. The school has utilized talents and expertise from within and has researched product lines from many vendors to assembly a system that will grow with our needs as we grow and advance into the 21st century.

Best Practices by Program

Graphic communications program is a very busy lab with state-of-the-art tooling that comparable with today's industry in graphics. Students learn simulation through Prepress System. Set-ups are generated by the instructor in Quadra 700 and students use power Macs to set print and layout design. A display on 21" radius monitors allow for clear interpretation of the print. Tektronix color printer, QMS tabloid printer and AGFA Imagesetter produce quality print to industry standards. Some of the students' work is displayed direct to film or direct to printing plate output. Software used in the program are state-of-the-art and include Adobe Photo Shop, Adobe Illustrator, Corel Clip Art CD, Kodak Photo CD. The CD output can be viewed by students on 27" JVC monitor as well as LCD overhead panels and a 4000 Lumen overhead. Students in Building Trades receive CAD before they enter grade 11. This CAD program works off Dell Pentium Stations 27" monitor/VCR, HP plotters and HP deskjet 2000. Each student learns the Autocad and Visual Cad software packages and designs their "dream home".

The Computerized Office Technology program uses the learning package designed by South-Western Publishing Company. All computers are IBM and networked through the Novell systems. Students work dependently and independently of the teacher in a variety of settings; medical, legal, general. Once the student is checked off on their competencies they intern in a regular office setting to get a sense of regular office practices and utilize the technology they have been exposed to.

Students in Health Services programs are exposed to a program series from Delmar. CD-Rom medical terminology brings up the latest vocabulary and definitions and uses them in actual "live-work" scenarios that students are more apt to identify with and remember longer. There are several dolls (male/female) from Health EDCO that have interchangeable hyper cards that allow for simulations of illness and irritability. The infant dolls are robotic and move and make noises as if it were a real baby. Students enjoy working through this phase of training because of the "real-ness" they are exposed to in the clinical setting of their training.

Science labs utilize the programs of several vendors: Optical Data Corporation puts out Living Textbook Laserdiscs for life sciences and physical sciences. During the course of a classroom or lab activity the teacher simply points (using an infrared printer) to a section of the text and a laser disc program highlights the process. Video Labs provides the instructor with a Flexcam camera and a microscope adapter for interactive TV lab application. Students literally get a microscopic view of elements being studied in the life and physical science curriculum. Besides these programs the school also has the services of a contemporary audio-visual department that can augment any curriculum. Resources such as Varitronics

Poster Printer Plus with poster lynx (IBM), Video Toaster workstation, Elmo EV-368 Visual Presenter and LCD Projector XV-PIOV give teachers added dimension to preparing and presenting a stimulating array of lessons that provoke students into learning and understanding the multi-faceted learning and training tools brought about by advanced technology. As we approach the 21st century it is indeed time to trade our old education model for total integration of work and learning. We are at a point where we need to totally rethink the basic scheme, the basic purpose, the basic paradigm of our schooling process in this country (Hoerner, 1995).

Conclusion

Fundamental learning of core curriculum components are indeed taking place in the classrooms at Southeastern Regional Vocational-Technical High School, but there is a heightened awareness for the elements of a technological society in these classrooms as well. Students and teachers communicating through several mediums that assist in the sharing and the manipulation of the learning process. Teachers who have become facilitators and students fine-tuned apprentices ready to accept the challenges of what they study in a rapidly changing society. Both are learning the immediacy of interactive technology as it is occurring. Classrooms that are no longer boring or mundane but active through electronic resources have become the centerpiece for the restructuring movement at Southeastern Regional Vocational-Technical High School. Faculty and students involved in interactive technology training are excited by the prospects. Those who sit on the edge get closer and closer to the process. Professional development, cooperative teaching and train the trainer strategies will eventually get everyone on board. This institution has indeed turned the corner as we advance our system to meet the demands of generating a well-educated, technically skilled and flexible individual able to compete moderately well in a global economy.

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